

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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OFFICE OF THE SECRETARY

In the Matter of)
)
The 4.9 GHz Band Transferred from)
Federal Government Use)

WT Docket No. 00-32

REPLY COMMENTS OF
ADAPTIVE BROADBAND CORPORATION

I. Introduction.

Adaptive Broadband Corporation ("ADAP"), by its attorneys and pursuant to Section 1.429 of the Commission's Rules, 47 C.F.R. §1.429, hereby replies to the comments filed on April 26, 2000 in response to the Commission's Notice of Proposed Rulemaking in the above-captioned proceeding.¹ In this proceeding, the Commission is proposing to allocate and establish licensing and service rules for the 4940-4990 MHz band (the "4.9 GHz band").

In these Reply Comments, ADAP supports the proposal of Motorola, Inc. ("Motorola") that the FCC's rules for the 4.9 GHz band promote the use of those technologies currently being deployed in the Unlicensed National Information Infrastructure ("U-NII") band at 5 GHz. Adoption of this proposal will promote the public interest, as it will ensure the greatest possible use of the 4.9 GHz band.

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¹ FCC 00-63, rel. Feb. 29, 2000 ("Notice").

II. ADAP and Its Interest in This Proceeding.

ADAP is a pioneer in the wireless broadband access market. The company is a leading supplier of terrestrial wireless systems to support ultra-high speed Internet access and worldwide Internet backbones. Founded in 1968 as California Microwave, ADAP in recent years has sharpened its market and product focus to concentrate on wireless broadband solutions such as ADAP's AB-AccessTM point-to-multipoint system ("AB-Access").

AB-Access is a wireless Internet access solution that enables end users to both upload and download substantial amounts of data at rates up to 25 Mbps based upon network demand. Users employing AB-Access can transmit voice, download full-streaming video, download data files, use real-time video conferencing, and surf the Web all at the same time over a single connection. The AB-Access product utilizes time-division duplexing ("TDD") to maximize bandwidth utilization. As a general matter, TDD has many advantages over frequency-division duplexing ("FDD"). For example, TDD is much more flexible in terms of spectrum planning, as it does not require a paired frequency allocation. It employs simpler hardware (*e.g.*, no duplexer), which means lower terminal equipment cost. CPE equipment cost is reduced as well with TDD, as spatial diversity can be implemented and channel equalization performed at the base station only. Simpler and more effective adaptive antennas can be used. Finally, with TDD adaptive channel equalization – combined with transmitter side pre-distort – can improve resistance to multipath performance impairments.

AB-Access builds upon conventional TDD, as ADAP has added dynamic capabilities to this technology. The pre-selected measured intervals of alternating upstream-downstream traffic that are a hallmark of conventional TDD have been replaced with a dynamic customer-responsive mechanism which permits the radio to change between transmit and receive modes in

two (2) microseconds. The result is a technology which maximizes the efficient use of available spectrum while providing end-users with bandwidth that is instantly responsive to their ever-changing needs.

AB-Access can support a wide range of available spectrum, up to 42 GHz. AB-Access is already being used commercially in the 5 GHz U-NII band, with service providers in Texas, New York, and Florida using it in the “last mile” to deliver high-speed Internet access to business and residential subscribers. In addition, ADAP plans to introduce the product for use in the 2.5 GHz ITFS/MMDS band and the 3.5 GHz band in Europe in the near future. ADAP is interested in deploying AB-Access in other bands, and thus has a direct and vital interest in this proceeding.

III. To Ensure the Greatest Possible Use of the 4.9 GHz Band, the FCC Should Adopt Rules For This Band That Will Promote the Deployment of Technologies That Are Currently Being Deployed in the 5 GHz U-NII Band.

In its comments, Motorola states that there is limited interest on the part of equipment manufacturers in the 4.9 GHz band. Since “this band cannot yet be accessed for commercial purposes on a global scale,” Motorola believes that manufacturers are unlikely to devote resources to developing specialized products for the 4.9 GHz band, particularly since customers today are more interested in standard equipment that can be operated in multiple bands.² In light of this fact, Motorola suggests that the Commission adopt rules that will allow equipment manufacturers to easily modify equipment developed for other bands to operate in the 4.9 GHz band. Since the 4.9 GHz band is in close proximity to the 5 GHz U-NII and there is considerable interest and development effort ongoing in the U-NII bands worldwide, Motorola proposes that the rules for the 5 GHz U-NII band form the basis for the rules applicable to the 4.9 GHz band.³

² Comments of Motorola at 2-3.

³ Comments of Motorola at 3.

However, Motorola supports licensed operations in the 4.9 GHz band, since unlicensed operations are not suitable for all users.⁴

ADAP supports Motorola's proposal. We agree with Motorola that the interest of equipment manufacturers in the 4.9 GHz band is probably limited. From ADAP's perspective, we have no plans to develop specialized equipment for this band at this time. It appears to ADAP that user interest in this band may be minimal as well. To date, no carrier or other possible user has asked ADAP about the availability of equipment for operation at 4.9 GHz. The number and type of comments filed in this proceeding thus far would appear to confirm the lack of interest generally in the 4.9 GHz band. Only 10 initial comments were filed,⁵ and of those comments, only a few expressed any interest in using the band.

In contrast, ADAP has found that there is significant interest in the U-NII band and the services offered at those frequencies. Several manufacturers are building equipment for operation in the U-NII band, with each manufacturer using its own band plan and modulation technique. ADAP and its customers use some U-NII band products from other manufacturers for backhaul; these radios must be co-located with the U-NII band cell sites. In addition, we know of instances in which as many as four (4) operators, each seeking a different customer base, are installing or demonstrating ADAP U-NII band equipment in the same geographic area. This growing interest in U-NII band technology raises the potential for congestion in at least some parts of the U-NII band in certain locations.

⁴ Comments of Motorola at 5.

⁵ In contrast, some 37 parties filed initial comments in the Commission's proceeding on the 700 MHz band (WT Docket No. 99-168), while 52 initial comments were filed in response to the Commission's NPRM on the U-NII band (ET Docket No. 96-102).

If the 4.9 GHz band were set up to accommodate “the licensed version of the technologies being designed for the unlicensed 5 GHz band,”⁶ ADAP believes that users would be much more interested in these frequencies. As Motorola indicates in its comments, some users are interested in U-NII band technology but want the protection of a licensed service. Furthermore, there are operational restrictions in parts of the U-NII band that would presumably be absent at 4.9 GHz (*e.g.*, the restriction on use of the 5.15-5.25 GHz band to indoor operations to reduce the potential for harmful interference to co-channel MSS operations). Also, use of the 4.9 GHz band would provide spectrum in those locations in which the 5 GHz U-NII band becomes congested. The 4.9 GHz band would also be of greater interest to equipment manufacturers if the band were established as a licensed alternative to the U-NII band. From the manufacturer’s perspective, the 4.9 GHz band is close enough to the 5 GHz U-NII band that U-NII band equipment could be modified to operate in the 4.9 GHz band with only moderate effort and at reasonable cost. Thus, equipment manufacturers are more likely to make equipment available for operation in the 4.9 GHz band if such equipment could be based on existing U-NII band technology.

In light of these facts, the Commission should accept Motorola’s proposal and adopt rules for the 4.9 GHz band that promote the use of 5 GHz U-NII technology. Such action will serve the public interest and the Commission’s goals in this proceeding, as it will ensure “that the spectrum is put to its best and most valued use and that the greatest benefit to the public is attained.”⁷ To promote the use of U-NII band technology at 4.9 GHz, the emission limits imposed on equipment operating in the 4.9 GHz band should be the same as those imposed on

⁶ Comments of Motorola at 7.

⁷ Notice at ¶ 19.

equipment operating in the 5 GHz U-NII band.⁸ If the emission limits are the same, then 5 GHz U-NII band equipment will be able to operate in the 4.9 GHz band with only minimal modifications.

IV. Conclusion.

In light of these facts, the FCC should adopt rules for the 4.9 GHz band as proposed herein.

Respectfully submitted,

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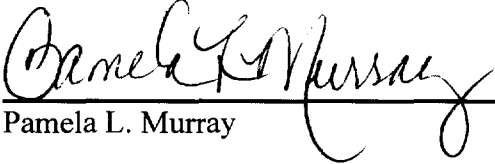
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⁸ Section 15.407(b) of the Commission's Rules requires, in most instances, that out-of-band emissions not exceed an EIRP of -27 dBm/MHz. *See* 47 C.F.R. §15.407(b)(1999).

CERTIFICATE OF SERVICE

I, Pamela L. Murray, do hereby certify that on this 17th day of May, 2000, a copy of the foregoing Reply Comments of Adaptive Broadband Corporation was mailed by U.S. first class mail, postage prepaid, upon the parties on the attached service list.


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